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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/419,620	10/15/1999	JONG WOOK PARK	0465-0716P	1535

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EXAMINER

NGUYEN, DUNG T

ART UNIT PAPER NUMBER

2871

DATE MAILED: 02/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/419,620

Applicant(s)

Park

Examiner
Dung Nguyen

Art Unit
2871



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Nov 22, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-7, 9-11, 13-15, and 17 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 9-11, 13-15, and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Nov 22, 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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Response to Amendment

Applicant's arguments dated 11/22/2002 has been received and entered.

Claim Objections

1. Claims 6-7, 9 and 11 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form. According to amendment dated 11/22/2002, claim 2 is canceled; therefore, those claims 6-7, 9 and 11 depend, either directly or indirectly, from claim 2 should be canceled.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 3-7, 9-11, 13-15 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA), in view of Applicant's submitted prior art, Katsuto, JP 5-323324 and Mishina et al., US Patent No. 5,954,999, as-stated in the previous office action.

APA discloses a method of forming a liquid crystal display (LCD) comprising the step of forming a LCD cell and heating the LCD cell (specification, page 3, lines 4-12). Furthermore, the

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heating step ($t=100^{\circ}\text{C}$)(specification, page 3, line 8) is performed at the temperature that is less than a curing temperature of the sealant ($t=180^{\circ}\text{C}$)(specification, page 8, line 4). It should be noted that the step of forming an alignment layer, sealant, laminating and injection a liquid crystal layer would be inherent to the step of forming the LCD cell.

Regarding claims 1, 10 and 14-15, APA fail to disclose the heating step being performed at a temperature is greater than about 10°C above a nematic isotropic transition temperature as well as the step of quickly cooling the LCD cell. Katsuto does disclose a LCD element is immediately plated flat on the surface of a rapid cooling plate to rapidly cool the LCD element from the heating temperature (see abstract). Therefore it would have been obvious to one skilled in the art to rapidly cool an APA's LCD cell from a heating temperature as shown by Katsuto in order to enable the efficient and easy reorientation of a liquid crystal layer (see purpose). In addition, APA do disclose that the LCD cell is heating at a temperature higher than a nematic isotropic transition temperature (specification, page 3, line 5). Therefore, such disclosed range in APA makes possible the claimed range of greater than about 10°C above a nematic isotropic transition temperature, and overlapping ranges are at least obvious. In re Malagari, 499 Fed.2d 1297, 182 USPQ 549 CCPA 1974.

Regarding claims 3-7, 9 and 11, APA does not disclose the heating temperature and based material for the alignment layer. One of ordinary skill in the art would have realized the desire to form a polyimide based material or photo-alignment material (e.g., polysiloxane) for an alignment layer depending on the method of forming such alignment layer (i.e, rubbing or lighting). As a

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result, the heating temperature would be follow on such alignment material (low heating temperature, e.g. 100° C, for rubbing method and/or high heating temperature, e.g. greater than 170° C for lighting method). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to heat an LCD cell at a predetermine temperature as well as to use a polyimide based for the rubbing alignment layer and polysiloxance based material for the lighting alignment layer because it is a common practice in the art to perform a stable alignment layer in the LCD cell.

Regarding claims 13 and 17, APA disclose the claimed invention as described above except for the heating step is performed at a temperature which is substantially equal to a baking temperature of the alignment layer. Mishina disclose a baking temperature of the alignment layer can be selected from -5° C to 100° C (col. 4, line 58). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to bake an alignment layer at 100° C as shown by Mishina, so as the heating temperature of the APA's LCD cell is substantially equal to a baking temperature of the alignment layer in order to product a liquid crystal alignment film which has a high tilt angle and excellent in electrical properties of LCD devices (see Technical Field).

Response to Arguments

4. Applicant's arguments filed 11/22/2002 have been fully considered but they are not persuasive.

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Regarding claims 1 and 14, Applicant contends that Applicant's disclosed art does not teach the step of heating a liquid crystal cell since Applicant appear to believe that Applicant appears to believe that in Applicant's disclosed art, a liquid crystal cell in which the liquid crystal is not injected is heat when the liquid crystal is injected into the liquid crystal cell (amendment, page 6). The Examiner respectfully disagrees with the Applicant's viewpoint and respectfully invited the Applicant to review the paragraph bridging pages 2-3 and the second paragraph on page 3 of the instant application, and there is nowhere to disclose a liquid crystal cell in which the liquid crystal is not injected is heat when the liquid crystal is injected into the liquid crystal cell, as assert by Applicant. In other words, Applicant's disclosed art does disclose a step of heating a liquid crystal cell as claims (specification, page 3, lines 6-8).

Accordingly, the rejection of claims 1, 3-7, 9-11, 13-15 and 17 stand.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Dung Nguyen whose telephone number is (703) 305-0423. The fax phone number for this Group is (703) 746-7730.

Any information of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-0956.

DN
02/05/2003


TOANTON
PRIMARY EXAMINER